

Remarks

Reconsideration and allowance of the subject application are respectfully solicited.

Claims 1-3, 6-18, 21, 22, 24-27 and 44-53 are now pending in the application, with Claims 1, 14, 44 and 49 being independent. Of the claims withdrawn from consideration, Claims 29-43 and 54-58 have been cancelled without prejudice or disclaimer in order to expedite allowance. Non-elected Claim 3 depends from Claim 1 and is requested to be rejoined and also allowed once Claim 1 is deemed to be allowable. Claims 23, 28 and 59 have also been cancelled without prejudice. Claims 1, 8, 14, 16, 44 and 49 have been amended herein.

Initially, Applicants wish to thank the Examiner for the courtesies extended during the personal interview of January 27, 2004. During the interview, the outstanding rejections were discussed as well as proposals to amend the claims to further distinguish from the citations of record. Those proposals have been incorporated into the claims as discussed below. It should be noted that the changes to the claims regarding the horizontal planes were made to clarify that the longitudinal axis of the tank is not necessarily in the same horizontal plane in which the water is ejected, and to clarify that in the embodiments where there are plural rows of nozzles, water would be ejected in plural horizontal planes (corresponding to the plural rows).

Claims 1, 2, 7, 8, 10-13 and 44-48 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 2,735,720 (Evert). Claim 6 was rejected under 35 U.S.C. § 103 as being unpatentable over Evert. Claim 9 was rejected under § 103 as being

unpatentable over Evert in view of any one of U.S. Patent No. 487,342 (Wittemann), U.S. Patent No. 723,453 (Fletcher), U.S. Patent No. 984,212 (Gray) or U.S. Patent No. 4,735,750 (Damann). Claims 14-18, 21-28, 49-53 and 59 were rejected under § 103 as being unpatentable over Evert and further in view of either Fletcher or Gray. These rejections are respectfully traversed.

As discussed during the interview, the carbonator in Evert emits a pair of whirling sprays from spray heads and the sprays come into contact with gas in the upper half of the tank and agitate the surface of liquid in the tank. As noted previously, due to the angular momentum of the whirling sprays, the water from each of the spray heads in Evert forms a conical flow pattern that is directed toward the pooling water and the sides and tops of the tank. While a small portion of these conical flow patterns may be argued to be in a horizontal plane, clearly most of the ejected water is not ejected in a horizontal plane. Accordingly, Evert fails to disclose or suggest at least that substantially all of atomized liquid is ejected in a direction that is substantially in a horizontal plane or directions that are substantially in horizontal planes, as is recited in independent Claims 1, 14, 44 and 49.

Thus, Evert fails to disclose or suggest important features of the present invention recited in the independent claims.

The carbonating process in Wittemann utilizes a spray-head B having several outlets. Although the outlets may be oriented in horizontal planes, the vessel A is oriented vertically not horizontally as recited in the independent claims. This orientation is important in order to maximize the length of time the atomized droplets are airborne before impacting the pooling liquid or sides of the vessel. Moreover, one of ordinary skill in the

art would not be motivated to replace the spray heads 26, 27 of Evert that utilize conical flows with the spray-head B of Wittemann because such would affect the carbonation efficiencies taught by Evert.

Fletcher describes an apparatus for aerating or carbonating liquids in which water is forced through lateral perforations j. However, like Wittemann, the cylindrical vessel is oriented vertically, not horizontally.

The internal combustion engine muffler of Gray sprays water through several horizontal perforations onto a thimble. Although the muffler chamber A appears to be a horizontally-oriented cylinder, the environment is a muffler for internal combustion engines not a carbonation tank and carbonation efficiencies are of no concern in Gray. Accordingly, one of ordinary skill in the art would not look to Gray to modify the teachings of the carbonator of Evert.

Damann describes a process and device for dissolution of gas and liquid and includes lateral outlets 10 for a gas/liquid solution mixture. However, like Wittemann and Fletcher, solution tank 2 is vertically oriented.

Thus, independent Claims 1, 14, 44 and 49 are patentable over the citations of record. Reconsideration and withdrawal of the §§ 102 and 103 rejections are respectfully requested.

For the foregoing reasons, Applicants respectfully submit that the present invention is patentably defined by independent Claims 1, 14, 44 and 49. Dependent Claims 2, 3, 6-13, 15-18, 21, 22, 24-27, 45-48 and 50-53 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their

respective independent claims. Individual consideration of the dependent claims is requested.

This Amendment After Final Rejection is an earnest attempt to advance prosecution and reduce the number of issues, and is believed to clearly place this application in condition for allowance. This Amendment was not earlier presented because Applicants earnestly believed that the prior Amendment placed the subject application in condition for allowance. Accordingly, entry of this Amendment under 37 CFR 1.116 is respectfully requested.

Applicants submit that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action, and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

  
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